



INVESTOR IN PEOPLE



The Patent Office  
Concept House  
Cardiff Road  
Newport  
South Wales  
NP10 8QQ

09/658550

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation and Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein together with the Statement of inventorship and of right to grant of a Patent (Form 7/77), which was subsequently filed.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

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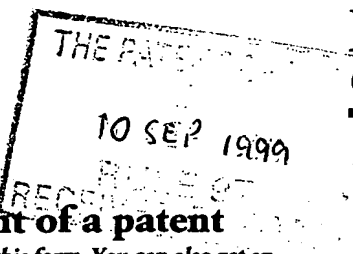
Signed

*Andrew*

Dated

1 September 2000

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# Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road  
Newport  
Gwent NP9 1RH

1. Your reference M99/0586/GB

2. Patent application number  
(The Patent Office will fill in this part)

9921394.4

10 SEP 1999

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Reflec plc  
Road One  
Winsford Industrial Estate  
Winsford  
Cheshire CW7 3QQ

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

7737984001 B  
Great Britain

4. Title of the invention

Printed Or Coated Fabrics

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

McNeight & Lawrence  
Regent House  
Heaton Lane  
Stockport  
Cheshire  
SK4 1BS

Patents ADP number (if you know it)

0001115001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)

Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

Yes

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (d))

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description 4

Claim(s) 1

Abstract -

Drawing(s) -

8

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature

Date 09.09.99

McNeight & Lawrence

12. Name and daytime telephone number of person to contact in the United Kingdom David L McNeight 0161 480 6394

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.
- Write your answers in capital letters using black ink or you may type them.
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- If you have answered 'Yes' Patents Form 7/77 will need to be filed.
- Once you have filled in the form you must remember to sign and date it.
- For details of the fee and ways to pay please contact the Patent Office.

## **PRINTED OR COATED FABRICS**

This invention relates to printed or coated fabrics, and particularly to fabrics printed with retroreflective inks.

For certain applications, notably where printed or coated with retroreflective inks, for example for backdrops and special effects screens in film and television studios, it is desirable that fabrics used are fireproof, or fire retardant.

The specialised nature of some retroreflective inks, however, raises problems in connection with many normally fireproof or fire retardant fabric materials.

The invention provides a fireproof or fire retardant fabric printed or coated with retroreflective ink that is particularly satisfactory as a backdrop or screen in the applications in question.

The invention comprises a fireproof or fire retardant fabric printed or coated with a retroreflective ink which comprises retroreflective elements in a polymeric matrix, the fabric comprising a structural component that chars before it melts.

The fabric may be made fireproof or fire retardant by application of a fire retardant agent, such as the commercially available Proban ® or Pyrovatex ®, to cellulose, or it may be naturally fireproof or fire retardant, such as an aramid.

The ink is desirably non-burning, at least once applied to the fabric. The polymeric matrix may comprise polyvinylidene chloride, polyvinyl chloride or other non-flammable plastisols.

Examples of fireproof or fire retardant fabrics according to the invention are woven cotton treated with Proban ® or Pyrovatex ® and aramid fabrics, printed with an ink according to the formula in either of Tables I and II.

**Table I** - inks based on a polyvinylidene chloride copolymer binder system and (3-aminopropyl) silanetriol coupling agent

<b>Ingredient/Ink reference</b>	<b>V246</b>	<b>V248</b>	<b>V251</b>
Urea (Humectant)	10	10	10
Water	128	288	288
Ammonium phosphate buffer	20	20	20
Emulsifier WN (Dispersant)	3	3	3
Agitan 218 (Defoamer)	2	2	2
Alcoprint PT21 (Thickening agent)	8	8	8
2,3 Propane diol (Humectant)	25	25	25
Polidene 33-048 (Binder)	273	163	163
Ammonium hydroxide	1.4	1.4	1.4
Silquest VS-142 (Coupling agent) [20% in water]	25	25	25
Alcoprint PT21 (Thickening agent)	3	5	3
Metallised beads (40 micron) treated with sodium silicate and Silquest A-1170	500	450	400
Non-metallised beads (40 micron) treated with sodium silicate and Silquest A-1170	--	--	50
<b>Total Weight of Ink (g)</b>	<b>998.4</b>	<b>1,000.4</b>	<b>998.4</b>
 Binder volume %	 15	 9	 9
Bead volume %	20	18	18
Binder volume/bead volume %	75	50	50
 Viscosity (pascals)	 25.6	 14.2	 12.3
Temperature (°C)	17.7	17.6	17.2
pH	8.6	8.7	8.7

**Table 2 -** inks based on a polyvinylidene copolymer binder system and a combination of (3-aminopropyl) silanetriol and blocked hexamethylene diisocyanate trimer coupling agents

<b>Ingredient/Ink reference</b>	<b>V253</b>	<b>V254</b>	<b>V257</b>
Urea (Humectant)	10	10	10
Water	91	183	183
Ammonium phosphate buffer	20	20	20
Emulsifier WN (Dispersant)	2	2	2
Emulsifier HVN (Dispersant)	2	2	2
Agitan 218 (Defoamer)	2	2	2
Alcoprint PT21 (Thickening agent)	9.3	8	8
2,3 Propane diol (Humectant)	25	25	25
Polidene 33-048 (Binder)	273	181	181
Ammonium hydroxide	1.4	1.4	1.4
Silquest VS-142 (Coupling agent) [20% in water]	25	25	25
Trixene BI 7986 (Coupling agent)	40	40	40
Alcoprint PT21 (Thickening agent)	--	--	--
Metallised beads (40 micron) treated with sodium silicate and Silquest A-1170	500	500	400
Non-metallised beads treated with sodium silicate and Silquest A-1170	--	--	100
<b>Total Weight of Ink (g)</b>	<b>1,000.7</b>	<b>999.4</b>	<b>999.4</b>
Binder Volume %	15	10	10
Bead Columes %	20	20	20
Binder Volume/Bead Volume Ratio %	75	50	50
Viscosity (pascals)	22.5	22.1	21.2
Temperature (°C)	19.3	19.0	19.0
pH	8.4	8.3	8.4

Generally speaking, the ingredients are added in the tabulated order. The thickener is added in two stages. Pigment, not tabulated, is added at the end in suitable quantity to yield the desired colour.

Viscosities were measured with a Brookfield viscometer using a number 5 spindle rotating at 10 rpm.



### CLAIMS

1. A fireproof or fire retardant fabric printed or coated with a retroreflective ink which comprises retroreflective elements in a polymeric matrix, the fabric comprising a structural component that chars before it melts.
2. A fabric according to claim 1, made fireproof or fire retardant by application of a fire retardant agent.
3. A fabric according to claim 2, in which the fire retardant agent comprises Proban ® or Pyrovatex ® or a like agent, applied to a cellulosic.
4. A fabric according to claim 1, the fabric comprising an aramid fibre.
5. A fabric according to any one of claims 1 to 4, in which the ink is non-burning once applied to the fabric.
6. A fabric according to claim 5, in which the polymeric matrix comprises polyvinylidene chloride, polyvinyl chloride or other non-flammable plastisol.

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